RADIAN
CORPORATION

SAROAD TAPE FORMAT

FILE	LOGICAL RECORDS	CONTENTS
0	1 - 6120	SAROAD Data for Apr 1, 1979 - Jun 30, 1979
1	1 - 6280	SAROAD Data for Jul 1, 1979 - Sep 30, 1979
2	1 - 6160	SAROAD Data for Oct 1, 1979 - Dec 31, 1979
3	1 - 6200	SAROAD Data for Jan 1, 1980 - Mar 31, 1980

Each file consists of N_q records, where

$N_1 = 6120$

$N_2 = 6280$

$N_3 = 6160$

$N_4 = 6200.$

More specifically,

$$N_q = TNDY_q \times \sum_{i=1}^{3 \text{ sites}} (NPARAM_i \times 2 + TSP_i) - \text{Excluded records}^*$$

$TNDY_q$ = Total number of days in quarter q,

$NPARAM_i$ = Number of parameters included for site i,

TSP_i = Number of TSP values included for site i, per day (usually Ø or 1).

*Note: If no valid data for the sampling interval is available for site i, the record is excluded.

The tape is blocked 40 (i.e., 40 SAROAD records are blocked into each tape record) giving 3200 characters per tape block. The individual SAROAD records are sorted first by site, next by date, then by parameter and finally by start hour.

The tape is written in ASCII character code with a density of 1600 BPI.

RECORDING AND SUBMITTING DATA ON SAROAD FORMS

Of the two SAROAD forms, the Hourly Data Form is designed for sampling intervals of less than 24 hours, and the Daily Data Form for sampling intervals of 24 hours and greater.

SAROAD Hourly Data Form (Intervals Less than 24 Hours)

The Hourly Data Form (Figure 1) is used for recording data observed or averaged at intervals of less than 24 hours. For example, it would be used for 1-hour gaseous pollutant readings. Since there is space for only 12 values for each day, two lines are required for each day's data when 1-hour readings are recorded. For any interval greater than 1 hour, only one SAROAD record (line) is needed to record an entire day. Entries on the upper left of the form provide identification.

On the top right-hand side of the form enter the SAROAD code numbers in the appropriate blocks. EPA will assign codes for the first line of blocks to the reporting agency when Site Identification forms are initially submitted. They consist of a two-digit code for state, a four-digit code for the area of the state in which the sampler is located, and a three-digit number specifically identifying the site.

In the second line of blocks, a code letter is entered to identify the type of agency submitting the data (see Code Table 1). Project codes identifying type of sampling program are listed in Code Table 2. "Time" is a one-character code used for the time interval of observations (Code Table 3). For "Year" enter the last two digits of the year in which the observation was taken. Months are designated 01 (January) through 12 (December). "Parameter Observed" refers to the pollutant sampled or the meteorological parameter measured, such as

LESS THAN 24-HOUR SAMPLING INTERVAL

ENVIRONMENTAL PROTECTION AGENCY
National Aerometric Data Bank
P. O. Box 12055
Research Triangle Park
North Carolina 27711

[1] (1) Agency

City Name

Site Address

Project

Parameter observed

Method

Time interval of obs.

Units of obs.

State (2 3) Area (4 5 6 7) Site (8 9 10)

Agency (11) Project (12 13) Time (14) Year (15 16) Month (17 18)

Parameter code (23 24 25 26 27) Method (28 29) Units (30 31) DP (32)

Day	St Hr	Rdg 1	Rdg 2	Rdg 3	Rdg 4	Rdg 5	Rdg 6	Rdg 7	Rdg 8	Rdg 9	Rdg 10	Rdg 11	Rdg 12
19 20	21 22	33 34 35 36	37 38 39 40	41 42 43 44	45 46 47 48	49 50 51 52	53 54 55 56	57 58 59 60	61 62 63 64	65 66 67 68	69 70 71 72	73 74 75 76	77 78 79 80

Figure 1. SAROAD Hourly Data Form.

"Sulfur Dioxide" or "Ambient Temperature." "Method" refers to the instrument type and/or the analytical method. Codes for "Parameter" and "Method" are given in Code Table 4. EPA maintains a detailed list of the pollutants and methods not shown in Code Table 4. Two-digit codes representing the units in which the values are expressed are given in Code Table 5. The final code block, "DP," stands for decimal point; this block designates the number of places to the right of the decimal point in the value entries. For example, to enter a reading of 0.025 PPM, enter "3" in the DP block and then enter "0025" in the value column. The one DP code applies to all values entered on the form.

On the body of the form, the two-block first column, "Day," is the calendar day of the month (e.g., 01, 02). "ST HR" (start hour) calls for a two-digit number signifying the hour the sampling began ("00" for midnight through "23" for 11 p.m.). For specific sampling intervals, go to Code Table 6 to determine start hour.

The next 12 four-column blocks are for the data values. A day of observations recorded at two-hour intervals fill one line. Observations taken at intervals greater than two hours do not fill all of the blocks. For example, data covering observations made every 4 hours fill only the first six sets of data blocks across the page. For 1-hour readings, use two lines for each day's observations. The first line gives "00" (midnight) for "ST HR" and lists the a.m. observations. The next line gives "12" (noon) for "ST HR" and lists p.m. observations. Observations for each half day are consecutive starting with column 33 on the appropriate a.m. or p.m. line. The data can be recorded to a maximum of four significant figures. If the value has less than four figures, add leading zeros to provide four figures. The columns in which each observation is recorded indicate the hour during which the observation was taken. For example, the sample

taken between 7 a.m. and 8 a.m. appears in the eighth group of four columns on the a.m. card, that is, in columns 61 through 64. If a reading is missing or invalid, leave the columns blank or enter four 9's.

SAROAD Daily Data Form (Intervals Greater than 24 Hours)

The Daily Data Form (Figure 2) is a month's record of up to four different parameters observed at a common site over periods of 24 hours or longer. This form is useful for 24-hour hi-vol or gas bubbler data that are observed daily, every third day, every sixth day, or any other random schedule. One line can be used for up to four parameters as long as the site, time interval, and starting hour are the same.

The identifying information and codes at the top of Form 2 are the same as on Form 1. Form 2 provides a separate column for each parameter. "ST HR" applies to all data values entered on the same line as the day of the month the observations were made. As before, report missing data by leaving the blocks blank or entering "9999."

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ENVIRONMENTAL PROTECTION AGENCY
National Aerometric Data Bank
P.O. Box 12055
Research Triangle Park, N.C. 27711

24-HOUR OR GREATER SAMPLING INTERVAL

2 (1) Agency

City Name

Site Address

Project

Time Interval

State (2 3) Area (4 5 6 7) Site (8 9 10)

Agency (11) Project (12 13) Time (14) Year (15 16) Month (17 18)

Name
PARAMETER Code (23 24 25 26 27)
Method (28 29) Units (30 31) DP (32)

Name
PARAMETER Code (37 38 39 40 41)
Method (42 43) Units (44 45) DP (46)

Name
PARAMETER Code (51 52 53 54 55)
Method (56 57) Units (58 59) DP (60)

Name
PARAMETER Code (65 66 67 68 69)
Method (70 71) Units (72 73) DP (74)

Day (19 20)	St Hr (21 22)	(33 34 35 36)	(47 48 49 50)	(61 62 63 64)	(75 76 77 78)
01					
02					
03					
04					
05					
06					
07					
08					
09					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					
31					
DP →		4 3 2 1 0	4 3 2 1 0	4 3 2 1 0	4 3 2 1 0

Figure 2. SAROAD Daily Data Form.

Code Table 1. AGENCY TYPE

A	EPA group responsible for atmospheric surveillance
B	EPA group responsible for meteorological activity
C	EPA group responsible for effects research
D	EPA group responsible for atmospheric research
E	EPA group responsible for abatement activity
F	State agency
G	County agency
H	City agency
I	District agency
J	Private
K	Institution (university, college, etc.)
L	Military
M	International agency
N	Other Federal nonmilitary agencies
O-Y	Open for future expansion
Z	Other

Code Table 2. PROJECT CLASSIFICATIONS

Long-term surveillance codes	
01	Population-oriented surveillance
02	Source-oriented ambient surveillance
03	Background surveillance
Short-term surveillance codes	
04	Complaint investigation
05	Special studies
06	Episode monitoring
07-99	For Federal networks and future expansion

Code Table 3. TIME INTERVAL

Code	Data observed over a period of:
1	1 hour
2	2 hours
3	4 hours
4	6 hours
5	8 hours
6	12 hours
7	24 hours
8	1 month
9	3 months
A	1 week
B	3 hours
C	Composite data
D-Z	For future expansion

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CODE TABLE 4. PARAMETERS AND METHODS

Parameter	Parameter Code	Method of Collection and Analysis		
		Collection	Analysis	Method Code
TSP	11101	Hi-Vol	Gravimetric	91
CO	42101	Instrumental	Nondispersive	11
SO	42401	Instrumental	Flame Photometric	16
NO	42601	Instrumental	Chemiluminescence	14
NO	42602	Instrumental	Chemiluminescence	14
NO	42603	Instrumental	Chemiluminescence	14
THC	43101	Instrumental	Flame Ionization	11
NMHC	43102	Instrumental	Flame Ionization	11
CH	43201	Instrumental	Flame Ionization	11
O	44201	Instrumental	Chemiluminescence	11
WS	61101	Instrumental	Electronic or Machine Avg.	50
			Electronic or Machine Avg. (Level 2)	52
			Electronic or Machine Avg. (Level 3)	53
WD	61102	Instrumental	Electronic or Machine Avg.	50
			Electronic or Machine Avg. (Level 2)	52
			Electronic or Machine Avg. (Level 3)	53
WSD	61106	Instrumental	Arithmetic Standard Dev. (Level 2)	22
			Arithmetic Standard Eev. (Level 3)	23
TMP	62101	Instrumental	Electronic or Machine Avg. (Level 1)	41
DT2	62106	Instrumental	Electronic or Machine Avg. (Level 3 - Level 1)	42
VIS	63101	Instrumental	Visiometer	11
RAI	65102	Instrumental	Incremental	11

Level 1 = 33 feet Level 2 = 146 feet Level 3 = 200 feet

Code Table 5. UNITS

Code Number	Units
01	micrograms/cubic meter (25°C, 1013 millibars)
02	micrograms/cubic meter (0°C, 1013 millibars)
03	nanograms/cubic meter (25°C, 1013 millibars)
04	nanograms/cubic meter (0°C, 1013 millibars)
05	milligrams/cubic meter (25°C, 1013 millibars)
06	milligrams/cubic meter (0°C, 1013 millibars)
07	parts per million (volume/volume)
08	parts per billion (volume/volume)
09	COHS/1000 linear feet
10	RUDS/10,000 linear feet
11	meters/second
12	miles/hour
13	knots
14	degrees
21	inches
24	miles
30	picocuries/cubic meter
31	microcuries/cubic meter
32	picocuries/square meter
33	microcuries/square meter
34	picocuries/cubic centimeter
35	picocuries/gram
50	number of threshold levels
70	milligrams F/100 square centimeters-day
80	milligrams SO_3/100 square centimeters-day
81	micrograms SO_2/square meter-day
90	tons/square mile-month[a]
91	milligrams/square centimeter-month[a]
92	micrograms/cubic meter-month[a]
98	milligrams SO_4^{2-}/square centimeters-30 days
99	milligrams/square centimeters-30 days

[a]On a calendar-month basis.